

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (previously presented): A magnetic head including a spin valve sensor comprising:
2 a magnetic shield layer (S1) being fabricated above a substrate base;
3 a first electrical insulation layer (G1) being fabricated above said S1 layer;
4 a spin valve sensor structure being disposed above said G1 layer;
5 wherein said spin valve sensor structure includes a seed layer being fabricated above said
6 G1 layer, a PtMn layer being disposed above said seed layer and at least one pinned magnetic
7 layer and at least one free magnetic layer being disposed above said PtMn layer; and
8 wherein said seed layer includes an Al₂O₃ sublayer, an NiMnO sublayer, and an Si
9 sublayer, and wherein said PtMn layer is disposed upon said Si sublayer.
10 .

1 2. (original): A magnetic head as described in claim 1 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 10 to 40 Å.

1 3. (original): A magnetic head as described in claim 1 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å.

1 4. (original): A magnetic head as described in claim 2 wherein said PtMn layer has a
2 thickness of approximately 120 Å.

1 5. (original): A magnetic head as described in claim 1 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å and said PtMn layer has a thickness of
3 approximately 120 Å.

1 6. (original): A magnetic head as described in claim 5 wherein said spin valve sensor layers
2 include at least one pinned magnetic layer having a composition including CoFe and at least one
3 spacer layer having a composition including Cu, and at least one free magnetic layer having a
4 composition including Co or CoFe.

1 7. (previously presented): A magnetic head as described in claim 1 wherein said Si sublayer
2 has an upper surface having a crystallographic surface that differs from the crystallographic
3 surface of a deposited Si sublayer.

1 8. (previously presented): A magnetic head including a spin valve sensor comprising:
2 a magnetic shield layer (S1) being fabricated above a substrate base;
3 a first electrical insulation layer (G1) being fabricated above said S1 layer;
4 a spin valve sensor structure being disposed above said G1 layer;
5 wherein said spin valve sensor structure includes a seed layer being fabricated above said
6 G1 layer, a PtMn layer being disposed above said seed layer and at least one pinned magnetic
7 layer and at least one free magnetic layer being disposed above said PtMn layer; and
8 wherein said seed layer has an upper surface comprised of Si having a crystallographic
9 surface that differs from the upper crystallographic surface of a deposited Si seed layer, and
10 wherein said PtMn layer is disposed upon said surface of said Si seed layer.

1 9. (original): A magnetic head as described in claim 8, wherein said seed layer includes
2 seed sublayers including Al_2O_3 , NiMnO and Si .

1 10. (original): A magnetic head as described in claim 9 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 10 to 40 Å.

1 11. (original): A magnetic head as described in claim 9 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å.

1 12. (original): A magnetic head as described in claim 8 wherein said PtMn layer has a
2 thickness of approximately 120 Å.

1 13. (original): A magnetic head as described in claim 8 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å and said PtMn layer has a thickness of
3 approximately 120 Å.

1 14. (original): A magnetic head as described in claim 13 wherein said spin valve sensor
2 layers include at least one pinned magnetic layer having a composition including CoFe and at
3 least one spacer layer having a composition including Cu , and at least one free magnetic layer
4 having a composition including Co or CoFe .

1 15. (previously presented): A hard disk drive, including at least one magnetic head having a
2 read head portion comprising:

3 a magnetic shield layer (S1) being fabricated above a substrate base;
4 a first electrical insulation layer (G1) being fabricated above said S1 layer;
5 a spin valve sensor structure being disposed above said G1 layer;
6 wherein said spin valve sensor structure includes a seed layer being fabricated above said
7 G1 layer, a PtMn layer being fabricated above said seed layer and at least one pinned magnetic
8 layer and at least one free magnetic layer; and
9 wherein said seed layer includes an Al_2O_3 sublayer, an NiMnO sublayer and an Si
10 sublayer, and wherein said PtMn layer is disposed upon said Si sublayer.

1 16. (original): A hard disk drive as described in claim 15 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 10 to 40 Å.

1 17. (original): A hard disk drive as described in claim 15 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å.

1 18. (original): A hard disk drive as described in claim 16 wherein said PtMn layer has a
2 thickness of approximately 120 Å.

1 19. (original): A hard disk drive as described in claim 15 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å and said PtMn layer has a thickness of
3 approximately 120 Å.

1 20. (original): A hard disk drive as described in claim 19 wherein said spin valve sensor
2 layers include at least one pinned magnetic layer having a composition including CoFe and at
3 least one spacer layer having a composition including Cu, and at least one free magnetic layer
4 having a composition including Co or CoFe.

1 21. (previously presented): A hard disk drive as described in claim 15 wherein said Si
2 sublayer has an upper surface having a crystallographic surface that differs from the
3 crystallographic surface of a deposited Si sublayer.

1 22. (previously presented): A hard disk drive, including at least one magnetic head having a
2 read head portion comprising:

3 a magnetic shield layer (S1) being fabricated above a substrate base;

4 a first electrical insulation layer (G1) being fabricated above said S1 layer;

5 a spin valve sensor structure being disposed above said G1 layer;

6 wherein said spin valve sensor structure includes a seed layer being fabricated above said
7 G1 layer, a PtMn layer being fabricated above said seed layer and at least one pinned magnetic
8 layer and at least one free magnetic layer; and

9 wherein said seed layer has an upper surface comprised of Si having a crystallographic
10 surface that differs from the crystallographic surface of a deposited Si seed layer, and wherein
11 said PtMn layer is disposed upon said surface of said Si seed layer.

1 23. (original): A hard disk drive as described in claim 22, wherein said seed layer includes
2 seed sublayers including Al₂O₃, NiMnO and Si.

1 24. (original): A hard disk drive as described in claim 23 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 10 to 40 Å.

1 25. (original): A hard disk drive as described in claim 23 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å.

1 26. (original): A hard disk drive as described in claim 24 wherein said PtMn layer has a
2 thickness of approximately 120 Å.

1 27. (original): A hard disk drive as described in claim 23 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å and said PtMn layer has a thickness of
3 approximately 120 Å.

1 28. (original): A hard disk drive as described in claim 27 wherein said spin valve sensor
2 layers include at least one pinned magnetic layer having a composition including CoFe and at
3 least one spacer layer having a composition including Cu, and at least one free magnetic layer
4 having a composition including Co or CoFe.

29-40 (cancelled)

1 41. (new) A magnetic head as described in claim 8 wherein said crystallographic surface of
2 said seed layer is rougher than the upper crystallographic surface of a deposited Si seed layer.

1 24. (original): A hard disk drive as described in claim 23 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 10 to 40 Å.

1 25. (original): A hard disk drive as described in claim 23 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å.

1 26. (original): A hard disk drive as described in claim 24 wherein said PtMn layer has a
2 thickness of approximately 120 Å.

1 27. (original): A hard disk drive as described in claim 23 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å and said PtMn layer has a thickness of
3 approximately 120 Å.

1 28. (original): A hard disk drive as described in claim 27 wherein said spin valve sensor
2 layers include at least one pinned magnetic layer having a composition including CoFe and at
3 least one spacer layer having a composition including Cu, and at least one free magnetic layer
4 having a composition including Co or CoFe.

29-40 (cancelled)

1 41. (new) A magnetic head as described in claim 8 wherein said crystallographic surface of
2 said seed layer is rougher than the upper crystallographic surface of a deposited Si seed layer.

1 42. (new) A hard disk drive as described in claim 22 wherein said crystallographic surface
2 of said seed layer is rougher than the upper crystallographic surface of a deposited Si seed layer.

1 43. (new): A magnetic head including a spin valve sensor comprising:
2 a magnetic shield layer (S1) being fabricated above a substrate base;
3 a first electrical insulation layer (G1) being fabricated above said S1 layer;
4 a spin valve sensor structure being disposed above said G1 layer;
5 wherein said spin valve sensor structure includes a seed layer including a sublayer being
6 composed of Si and being fabricated above said G1 layer, a PtMn layer being disposed upon said
7 Si seed sublayer, and at least one pinned magnetic layer and at least one free magnetic layer
8 being disposed above said PtMn layer; and
9 wherein said Si seed sublayer has a body portion and an upper surface, and wherein said
10 body portion has a first crystallographic structure and said upper surface has a crystallographic
11 structure that differs from said first crystallographic structure, and wherein said PtMn layer is
12 disposed upon said upper surface of said Si seed layer.

1 44. (new): A magnetic head as described in claim 43, wherein said crystallographic structure
2 of said upper surface is rougher than said first crystallographic structure.

1 45. (new): A magnetic head as described in claim 43, wherein said seed layer includes seed
2 sublayers including Al_2O_3 and NiMnO.

1 46. (new): A magnetic head as described in claim 45 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 10 to 40 Å.

1 47. (new): A magnetic head as described in claim 43 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å and said PtMn layer has a thickness of
3 approximately 120 Å.

1 48. (new): A hard disk drive, including at least one magnetic head having a read head
2 portion comprising:

3 a magnetic shield layer (S1) being fabricated above a substrate base;

4 a first electrical insulation layer (G1) being fabricated above said S1 layer;

5 a spin valve sensor structure being disposed above said G1 layer;

6 wherein said spin valve sensor structure includes a seed layer including a sublayer being
7 composed of Si and being fabricated above said G1 layer, a PtMn layer being disposed upon said
8 Si seed sublayer, and at least one pinned magnetic layer and at least one free magnetic layer
9 being disposed above said PtMn layer; and

10 wherein said Si seed sublayer has a body portion and an upper surface, and wherein said
11 body portion has a first crystallographic structure and said upper surface has a crystallographic
12 structure that differs from said first crystallographic structure, and wherein said PtMn layer is
13 disposed upon said upper surface of said Si seed layer.

1 49. (new): A hard disk drive as described in claim 48, wherein said crystallographic
2 structure of said upper surface is rougher than said first crystallographic structure.

1 50. (new): A hard disk drive as described in claim 48, wherein said seed layer includes seed
2 sublayers including Al_2O_3 , and NiMnO .

1 51. (new): A hard disk drive as described in claim 50 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 10 to 40 Å.

1 52. (new): A hard disk drive as described in claim 48 wherein said Si seed sublayer is
2 fabricated to have a thickness of approximately 20 Å and said PtMn layer has a thickness of
3 approximately 120 Å.